Percutaneous sheath introducer

TAKE THESE PRECAUTIONS TO AVOID AIR EMBOLISMS.

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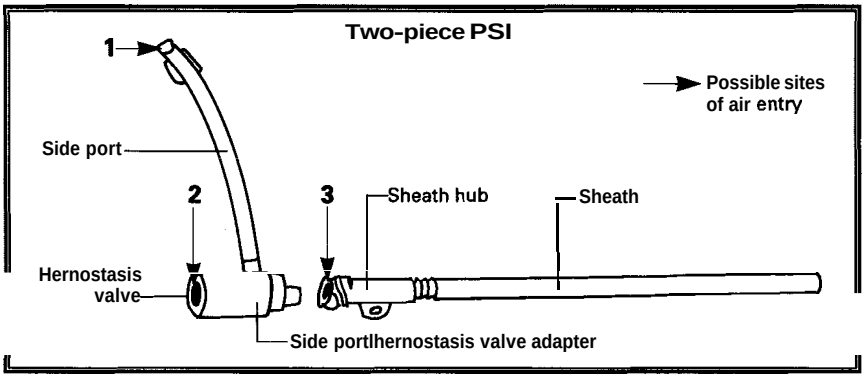
A PULMONARY ARTERY CATHETER was inserted in a 37-year-old man admitted to the ICU with a gunshot wound. When the catheter was removed, the introducer was left in place for I.V. access. A short time later, air was noted in the introducer's side port. The patient's oxygen saturation decreased to 85%, his pulse rate increased to 140, his respiratory rate rose to 60, and he was short of breath and agitated. The diagnosis: air embolism.

What went wrong?

Percutaneous sheath introducers (PSIs) are used to insert pulmonary artery catheters; they can also serve as a large-bore central venous access. PSIs are available as both one-piece and two-piece devices. Air



embolisms are usually associated with two-piece PSIs, which have a detachable side port/hemostasis valve.

As shown above, air can enter a PSI at one of three points:

1. at the connection between the side port and the I.V. tubing
2. at the hemostasis valve if it doesn't seal after catheter removal
3. at the side port/hemostasis valve adapter if it disconnects from the sheath hub (possible only with a two-piece PSI).

What precautions can you take?

- Make sure all connections are tight, including tubing connections, stopcocks, and the PSI side port.
- Tape the tubing securely to the skin to prevent stress on the tubing and possible disconnection.
- Insert an obturator cap onto the hemostasis valve after catheter removal.
- When using a two-piece PSI, screw the side port/hemostasis valve adapter and the sheath hub together tightly; detachment is difficult to detect.
- If possible, use the one-piece design on agitated patients because the risk of disconnection is less.
- Teach patients Valsalva's maneuver during catheter insertion and removal.
- Remove a PSI as soon as central venous access is no longer indicated.
- Apply petroleum gel gauze and a pressure dressing immediately after PSI removal. ■

Although you need to support the adverse event–reporting policy of your health care facility, you may voluntarily report a medical device that doesn't perform as intended by calling MedWatch at 1-800-FDA-1088(fax: 1-800-FDA-0178). The opinions and statements contained in this report are those of the author and may not reflect the views of the Department of Health and Human Services. Device *Errors* is coordinated by Chris Parmentier, RN.